



**State of Rhode Island and Providence Plantations  
Water Resources Board**

Justice William E. Powers Building, Third Floor  
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Providence, RI 02908  
(401) 574-8400 ♦ FAX: (401) 574-8401

Date: May 30, 2008

To: Robert Griffith, Ph.D., Chair, Water Resources Protection & Use Committee  
WRP&U Committee Members

Through: Juan Mariscal, P.E.  
General Manager

From: Beverly O'Keefe, M.A.  
Supervising Planner

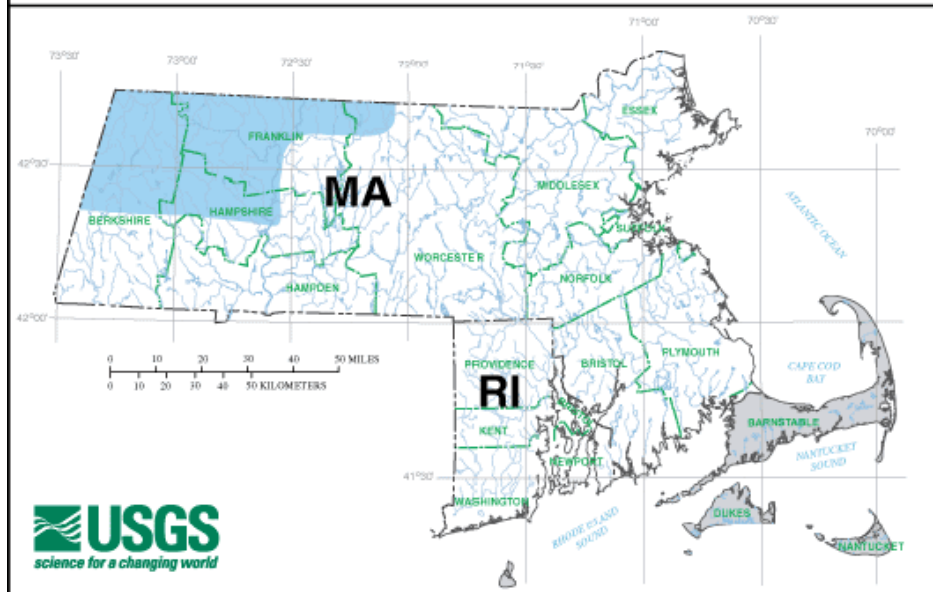
Re: Drought Management Plan Program – Current Conditions

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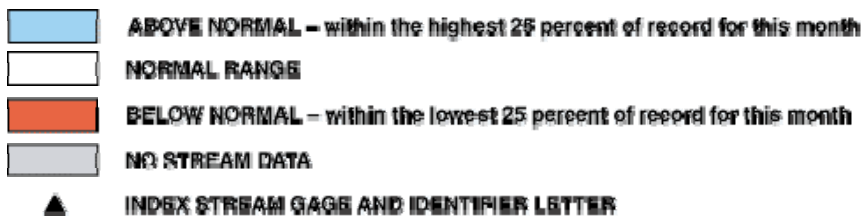
BACKGROUND: Pursuant to State Guide Plan Element 724: The Rhode Island Drought Management Plan, the Water Resources Board is required to assess water conditions monthly. Staff has assembled climate information from a variety of sources to monitor the potential for drought conditions in Rhode Island which is summarized below:

<b>Data Source</b>	<b>Date</b>	<b>Report Summary</b>
NOAA NWS Taunton MA Climate Report	Apr 21, 2008	1.94" received thru May 31, 2008, T.F. Green Airport; -1.72" below normal since May 1; +2.37" above normal since Jan. 1.
USGS Surface Water Report	April 2008	Normal –Rhode Island
Scituate Reservoir	May 30, 2008	102.4% of Capacity (284.78 feet as of May 30, 2008)
USGS Groundwater Level Summary	April 2008	Generally Normal
USGS RI Groundwater Level Well Report	April 2008	Burrillville well 396 set new or lowest record for April
NWS Drought Severity Index: Palmer	24 May 2008	Normal
NOAA NWS Crop Moisture Index	24 May 2008	Normal
NOAA NWS Northeast Drought Monitor Seasonal Assessment	27 May 2008	Normal
NOAA Seasonal Drought Outlook (through May 2008)	15 May 2008	Normal
NOAA Standard Precipitation Index – Six Months	April 2008	Moderately Moist

# Surface-Water Runoff April 2008



## COMPARISON WITH MONTHLY NORMAL RANGE



**NOTE:** Additional sites from those shown are used to determine ranges

The **USGS Water Conditions Statement** is summarized in three tables (Surface Water Runoff, Ground-water Level Conditions, and Summary of Rhode Island Ground-Water Levels). Surface-water flows at the end of April 2008 were generally normal (between lowest and highest 25 percent of flows for April) in all of Rhode Island. This assessment is based on monthly flow statistics (30-year period from 1971 to 2000) for 54 near-real-time streamflow-gaging stations with 30 or more years of record. No record-high or record-low monthly mean discharges were recorded during the month of April.

Ground-water levels were generally normal in Rhode Island, including Block Island. A new record-low ground-water level for the month of April was measured in the Burrillville 396 well in Rhode Island.

Borden Brook/Cobble Mountain, Quabbin and Scituate Reservoirs were 94-, 100-, and 103-percent full, respectively, at the end of April. In comparison, Borden Brook/Cobble Mountain, Quabbin, and Scituate Reservoirs were 93-, 98- and 104-percent full, respectively, at the end of March.

Table 2: Ground Water-Level Conditions

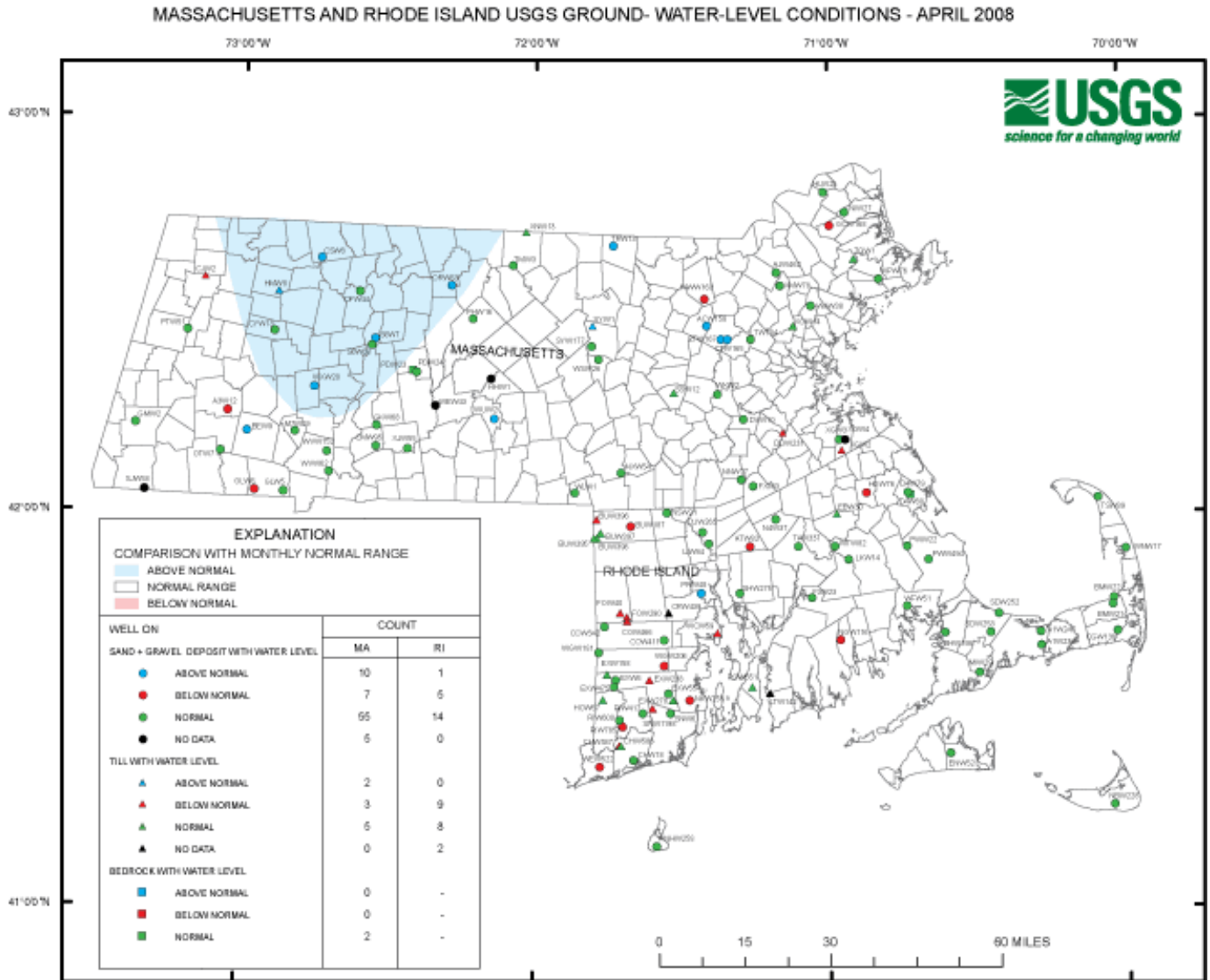


TABLE 3: SUMMARY OF GROUND-WATER LEVELS April 2008 PROVISIONAL

(NOTE: Wells with \* also available in real-time at top of Ground-Water Data page; OWC, monthly measured value used in high ground-water level estimation report, USGS Open-File Report 80-1205.)

WELL	L T I O T P H O O	START YEAR OF RECORD	NET CHANGE		DEPARTURE FROM MONTHLY MEDIAN	WATER LEVEL	
			IN MONTH	IN ONE YEAR		BELOW LAND- SURFACE DATUM (OWC)	DAY
			(FEET)	(FEET)	(FEET)	(FEET)	
RHODE ISLAND							
BURRILLVILLE 187	TS	1968	- 0.43	- 0.83	- 0.46	14.43	25
BURRILLVILLE 395	UT	1992	+ 0.61	- 0.83	- 0.34	6.39	25
BURRILLVILLE 396	VT	1992	+ 0.58	- 0.94	- 0.40	5.30	< 25
BURRILLVILLE 397	HT	1992	- 0.78	- 3.22	- 1.31	11.55	25
BURRILLVILLE 398	HT	1992	+ 0.19	- 2.21	- 0.79	7.59	25
CHARLESTOWN 18	FS	1946	- 0.73	- 3.13	- 0.56	16.11	25
CHARLESTOWN 586	VT	1992	+ 1.10	- 0.26	- 0.08	3.56	25
CHARLESTOWN 587	ST	1992	- 3.27	- 3.40	- 1.49	7.71	25
COVENTRY 342	VS	1991	- 1.54	- 2.15	- 0.83	8.23	25
COVENTRY 411	SS	1961	- 0.76	- 1.60	- 0.31	20.46	25
COVENTRY 466	VT	1992	+ 0.51	- 0.33	- 0.29	2.86	25
CRANSTON CITY 439	ST	1992	-----	-----	-----	-----	
CUMBERLAND 265	SS	1946	- 0.77	- 1.68	+ 0.10	11.77	25
EXETER 6	VS	1948	- 0.86	- 1.32	- 0.29	5.14	25
EXETER 158	ST	1991	- 1.44	- 1.84	- 0.42	6.49	25
EXETER 238	FT	1991	- 0.73	- 1.03	- 0.41	11.91	25
EXETER 278	HT	1991	- 1.91	- 1.83	- 0.30	8.54	25
EXETER 475	VS	1981	- 0.56	- 1.34	- 0.36	13.07	25
EXETER 554	SS	1988	- 0.48	- 0.63	- 0.19	9.11	25
FOSTER 40	HT	1991	- 1.13	- 1.49	- 1.12	4.94	25
FOSTER 290	HT	1992	- 0.04	- 2.12	- 1.19	5.39	25
HOPKINTON 67	ST	1991	- 1.54	- 4.78	- 1.90	13.75	25
LINCOLN 84	VS	1946	- 0.99	- 2.16	- 0.40	4.81	25
LITTLE COMPTON 142	ST	1992	-----	-----	-----	-----	
NEW SHOREHAM 258	UT	1991	+ 0.11	-----	- 0.56	11.01	28
NORTH KINGSTOWN 255	VS	1954	- 0.94	- 2.98	- 1.16	8.27	25
NORTH SMITHFIELD 21	TS	1947	- 0.89	- 1.79	- 0.52	7.07	25
PORTSMOUTH 551	HT	1992	- 3.34	- 5.06	- 0.95	33.14	25
PROVIDENCE 48	TS	1944	- 0.42	- 0.88	+ 1.76	4.06	25
RICHMOND 417	VS	1976	- 0.48	- 1.20	- 0.38	6.42	25
RICHMOND 600 *	TS	1977	- 0.20	- 0.84	- 0.14	33.14	25
RICHMOND 785	FS	1989	+ 0.52	- 3.48	- 1.96	24.33	25
SOUTH KINGSTOWN 6	VS	1955	- 0.53	- 1.49	- 0.13	10.93	25
SOUTH KINGSTOWN 1198	FS	1988	- 0.92	- 1.85	- 0.75	7.43	25
WARWICK 59	ST	1991	- 0.51	- 0.44	- 0.21	4.97	25
WESTERLY 522	FS	1969	- 0.86	- 1.34	- 0.56	11.96	25
WEST GREENWICH 181	US	1969	- 1.12	- 2.01	- 0.14	15.12	25
WEST GREENWICH 206	ST	1991	- 0.24	- 0.36	- 0.30	4.06	25

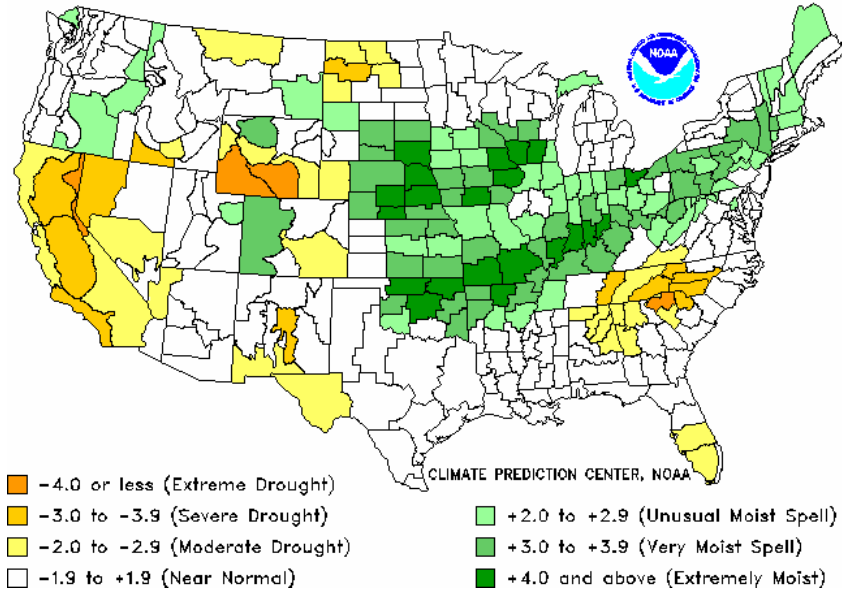
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 >> SET NEW HIGH OR EQUALED HIGHEST RECORDED WATER LEVEL FOR PERIOD OF RECORD  
 > SET NEW HIGH OR EQUALED HIGHEST RECORDED WATER LEVEL FOR END OF JANUARY  
 << SET NEW LOW OR EQUALED LOWEST RECORDED WATER LEVEL FOR PERIOD OF RECORD  
 < SET NEW LOW OR EQUALED LOWEST RECORDED WATER LEVEL FOR END OF JANUARY  
 ----- DATA NOT AVAILABLE

TOPOGRAPHIC (TOPO) SETTING: F=FLAT, G=FLOOD PLAIN, H=HILLTOP, S=HILLSIDE,  
 T=TERRACE, U=UNDULATING, V=VALLEY, W=UPLAND DRAW, LITHOLOGY (LITHO): G=GRAVEL, R=ROCK, S=SAND,  
 T=TILL

The NOAA National Weather Service (NWS) Drought Severity Index for the period ending May 24, 2008 shows “near normal” for Rhode Island (Table 4). The Crop Moisture Index for the same time period shows “slightly dry/favorably moist” conditions (Table 5).

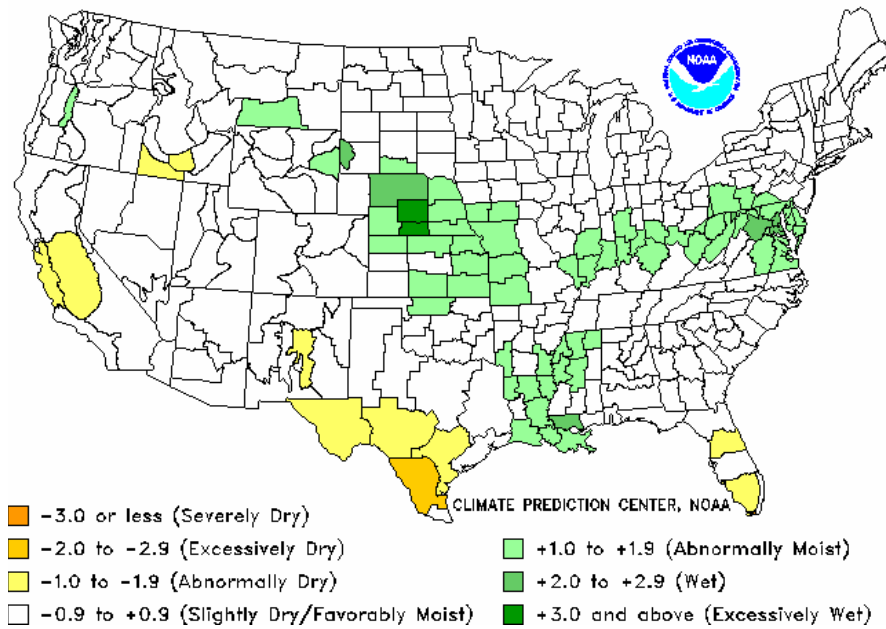
**Table 4: Drought Severity Index**

Drought Severity Index by Division  
 Weekly Value for Period Ending 24 MAY 2008  
 Long Term Palmer



**Table 5: Crop Moisture Index**

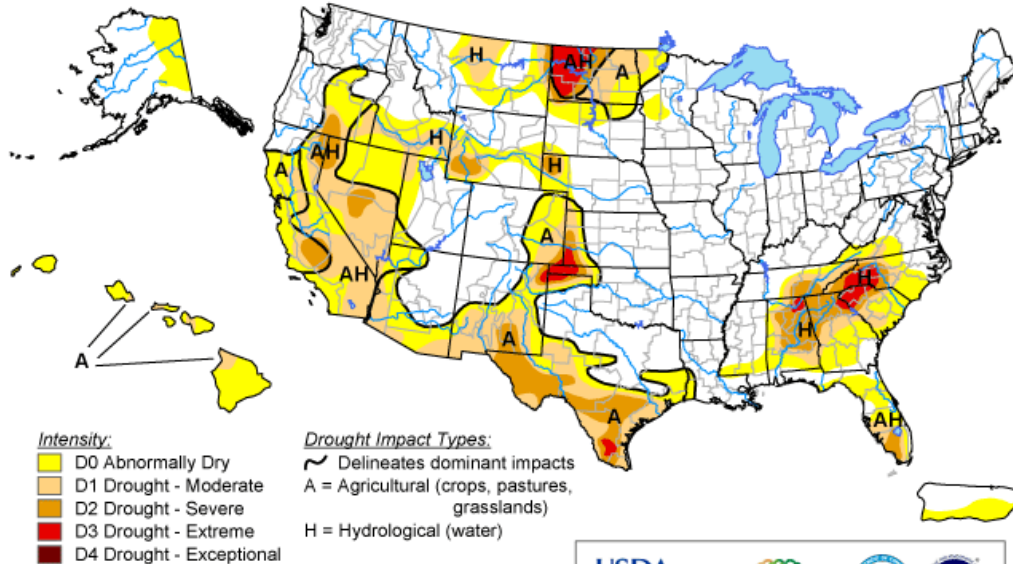
Crop Moisture Index by Division  
 Weekly Value for Period Ending 24 MAY 2008  
 Short Term Need vs. Available Water in 5 Ft Profile



**Table 6: US Drought Monitor**

# U.S. Drought Monitor

May 27, 2008  
Valid 8 a.m. EDT



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

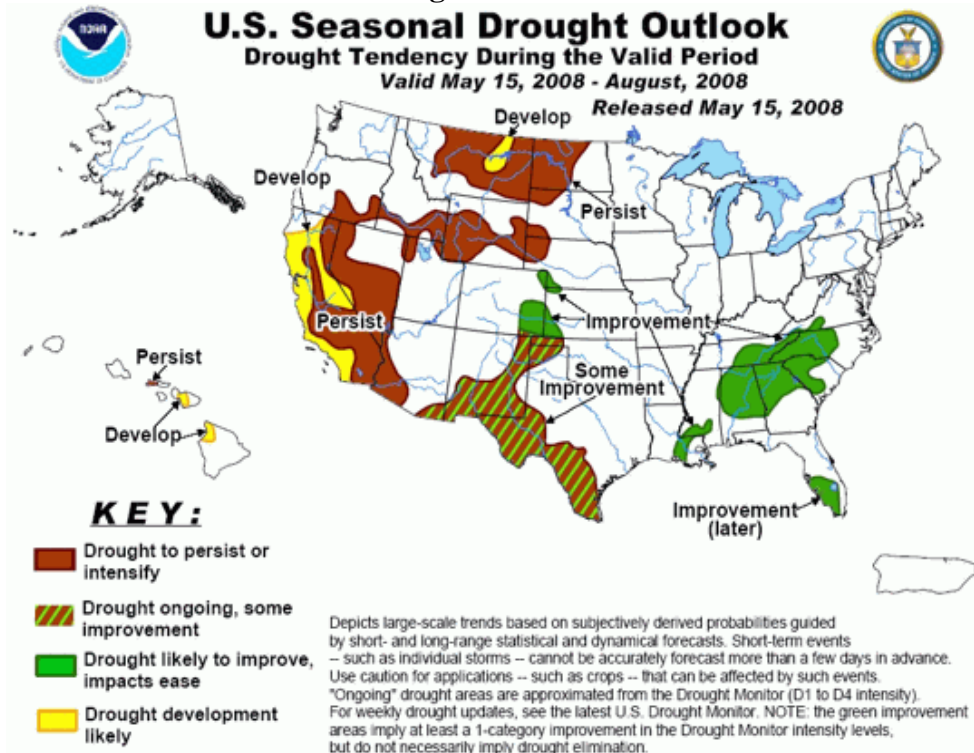
<http://drought.unl.edu/dm>



Released Thursday, May 29, 2008  
Author: David Miskus, JAWF/CPC/NOAA

Tables 6 and 7 present national seasonal assessment and state rankings based on precipitation. The Northeast Drought Monitor (Table 6) portrays Rhode Island experiencing normal conditions through May 27, 2008. The NOAA Seasonal Drought Outlook through May 15, 2008 projects “normal” conditions for Rhode Island.

**Table 7: NOAA Seasonal Drought Outlook**



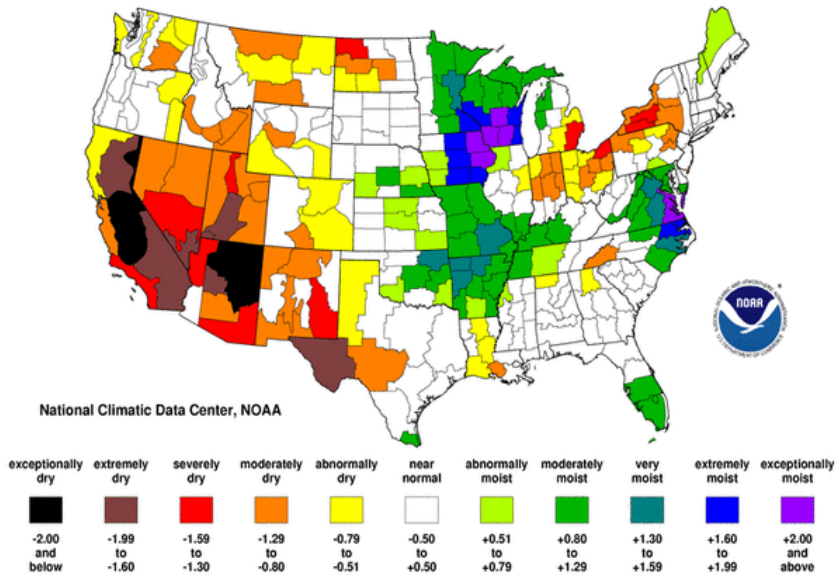


## Current Standardized Precipitation Index

The Standardized Precipitation Index (SPI) is a way of [measuring drought](#) that is different from the Palmer drought index (PDI). Like the PDI, this index is negative for drought, and positive for wet conditions. But the SPI is a probability index that considers only precipitation, while Palmer's indices are water balance indices that consider water supply (precipitation), demand (evapo-transpiration) and loss (runoff). The SPI One-Month and the Six-Month condition is “near normal” for Rhode Island.

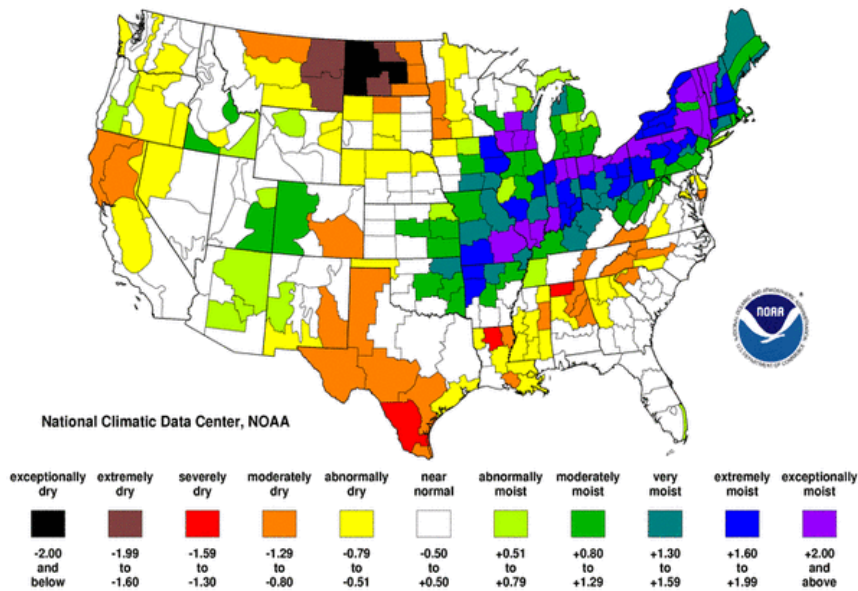
### Standardized Precipitation Index One Month

April 2008



### Standardized Precipitation Index Six Months

November 2007-April 2008



## **DISCUSSION**

Water conditions have continued to improve throughout the spring and will continue to be closely monitored over the next month by the Water Resources Board staff. The Drought Steering Committee met on May 15, 2008 and recommended remaining in a “drought advisory” based on continued improvement of the long-term drought indicators. Ground water levels especially in the southern region of Rhode Island continue to record below normal levels.

Hydrologic conditions will be closely monitored through June, and if hydrologic and meteorologic conditions do not improve or decrease, a meeting of the Drought Steering Committee will be convened.

The National Weather Service and the Water Resources Board partnership regarding the “Community Collaborative Rain, Hail & Snow Network” (CoCoRaHS) program data was used with the National Weather Service meteorologic data to compile the May preliminary precipitation report statistics.

## **RECOMMENDATIONS : Information only.**

Additional Information on Water Conditions:

NOAA NWS Climate Report

<http://www.erh.noaa.gov/box/fcsts/BOSESFBOX.html>

NOAA Drought Severity Index by Division

[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/palmer.gif](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif)

Crop Moisture Index by Division

[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/cmi.gif](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/cmi.gif)

NOAA Drought Information Center

<http://www.drought.noaa.gov/>

U. S. Geological Survey – MA & RI

<http://ma.water.usgs.gov/>